

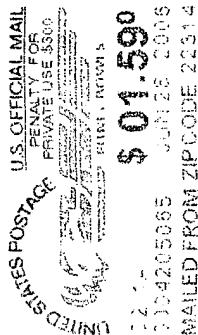
IC28UU

Jeff

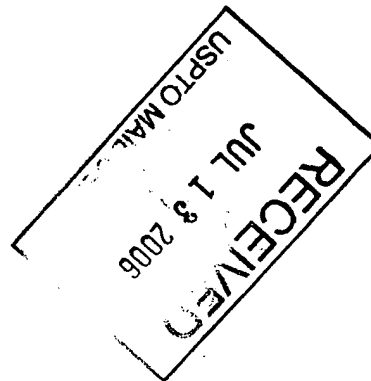
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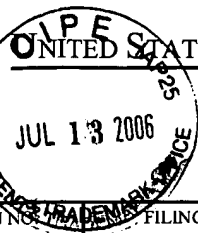
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,880	09/11/2003	Gary J. Verdun	016295.1421 (DC-05148)	5013

23640 7590 06/28/2006

BAKER BOTTS, LLP
910 LOUISIANA
HOUSTON, TX 77002-4995

EXAMINER

WONG, NOBLE S

ART UNIT PAPER NUMBER

2179

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/659,880

Applicant(s)

VERDUN ET AL.

Examiner

Noble S. Wong

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/11/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 09/11/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 94 in Fig. 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 22 is objected to because of the following informalities: "selectively fix" is inconsistent terminology. In the specification and claim 13, the term "lock" is used. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 4, 6, and 17 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the information handling system". There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "the component control". There is insufficient antecedent basis for this limitation in the claim. During this action, it is understood as "the related component control".

Claim 17 recites the limitation "the performance control". There is insufficient antecedent basis for this limitation in the claim. During this action, claim 17 is understood to be dependent to claim 14 (i.e. "The information handling system of claim 14...")

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 5-12, 14-16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Barrus (US Patent # 6,192,480 B1).

As to claim 1, Barrus discloses a method for communicating the consequences of a user preference setting on related components, comprising:

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- displaying a component control (CPU speed dial 60) for a selected component (processor 32), the component control operable to effect a user preference setting concerning the selected component (i.e. see col. 5 line 65 – col. 6 line 35);
- and displaying an operating status (i.e. the amount of charged-time left on time indicator 64) for a component (battery 26) related to the selected component, the operating status of the related component resulting from effecting the user preference setting on the selected component (i.e. see col. 5 line 27 – col. 6 lines 53).

As to claim 8, Barrus discloses an information handling system, comprising:

- a memory (memory 34);
- a processor (processor 32) operably coupled to the memory;
- a plurality of components (i.e. display 22 and battery 26) operably coupled to the memory and the processor, each component having an operating status (i.e. display brightness dial 56, time indicators 64 for Battery 1 and Battery 2);
- a display device (display 22) operably coupled to the memory and the processor;
- and a program of instructions (applications 36) storable in the memory and executable by the processor,
 - the program of instructions operable to display (visual interface 50 displayed on display 22) the operating status (CPU Speed dial 60) for a first component (processor 32),
 - receive a desired modification in operation (i.e. using CPU speed dial 60 see col. 5 line 66 – col. 6 line 16) for the first component,
 - determine (i.e. see col. 5 lines 27-44) the operating status (i.e. the amount of charged-time left in batteries 26 shown in time indicators 64) for each operationally linked component (batteries 26) resulting from the modification in operation (col. 6 line 17-66) for the first component,
 - and display on the display device the operational status (CPU speed dial 60) for the first component and at least one operationally linked component (i.e. time indicator 64 for batteries 26).

As to claim 18, Barrus discloses a computer program (visual interface 50), stored on a tangible storage medium (memory 34), for use in communicating the effects of user preference settings in an information handling system, the program including executable instructions that cause a computer to:

- define relationships between a plurality of information handling system components (i.e. see col. 5 lines 52-65);

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- display at least one performance control (CPU speed dial 60), the performance control operable to effect at least one desired change in operation of a configurable information handling system component (i.e. see col. 6 lines 17-35);
- receive, through the at least one performance control (CPU speed dial 60), a desired change (i.e. "The user may adjust the position of the hand 62 by positioning a mouse pointer (not shown) over the hand 62, depressing the mouse button, and sliding the pointer to move the position of the hand 62." See col. 6 lines 7-16) in operation of the configurable information handling system component;
- calculate, based on the defined relationships, effects (i.e. see col. 7 lines 42-55) on one or more related information handling system components resulting from the desired change in operation of the configurable information handling system component;
- and display an operating status for the related information handling system components resulting from effecting the desired change (CPU speed dial 60).

As to claim 2, Barrus teaches the method of claim 1, further comprising displaying an operating status (CPU speed dial 60) for the selected component (processor 32) and each related component (i.e. batteries 26), the operating status (i.e. the amount of charged-time left in batteries 26 shown in time indicators 64) of each component reflecting the consequences of effecting the user preference setting on the selected component (i.e. see col. 6 lines 17-66).

As to claim 3, Barrus teaches the method of claim 1, further comprising determining (i.e. see col. 5 lines 27-44) the operating status (i.e. the amount of charged-time left in batteries 26 shown in time indicators 64) of a related component (batteries 26) resulting from effecting the user preference setting (CPU speed dial 60) on the selected component (processor 32) based on user defined component relationships (i.e. see col. 5 lines 52-65).

As to claim 5, Barrus teaches the method of claim 1, further comprising displaying (on display 22) a plurality of component controls (visual interface 50), each of the plurality of component controls (i.e. hard drive powerdown-time dial 54, display

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brightness dial 56, and CPU speed dial 60) corresponding to a respective component (i.e. hard drive 35, display 22, processor 32) and operable to effect a user preference setting on its respective component (i.e. see col. 5 line 66 – col. 6 line 16).

As to claim 6, Barrus teaches the method of claim 1, further comprising

- displaying (on display 22) an operating status for a plurality of related components (visual interface 50);
- displaying a component control (display brightness dial 56) for at least one of the related components (display 22);
- and adjusting the operating status (i.e. the amount of charged-time left on time indicator 64) of the plurality of related components substantially simultaneously with an adjustment of the [related] component control (i.e. see col. 1 lines 33-40).

As to claim 7, Barrus teaches the method of claim 1, further comprising

communicating the user preference setting to a device manager (power management utility process 42), the device manager operable to adjust operation of the selected component in accordance with the user preference setting (i.e. see col. 5 lines 51-65).

As to claim 9, Barrus teaches the information handling system of claim 8, further comprising the program of instructions operable to define the operational links between components (i.e. see col. 8 lines 31-52).

As to claim 10, Barrus teaches the information handling system of claim 9, further comprising the program of instructions operable to ascertain configuration of the information handling system to define the operational links between components (i.e. see col. 8 lines 31-52).

As to claim 11, Barrus teaches the information handling system of claim 9, further comprising the program of instructions operable to define the operational links between components in accordance with user supplied parameters (i.e. see col. 9 lines 28-40).

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As to claim 12, Barrus teaches the information handling system of claim 9, further comprising the program of instructions operable to calculate the effects (i.e. see col. 7 lines 42-55) resulting from the modification in operation according to the defined operational links (i.e. see col. 8 lines 31-52).

As to claim 14, Barrus teaches the information handling system of claim 8, further comprising the program of instructions operable to display (on display 22) a plurality of performance controls (visual interface 50) the performance controls operable to effect a modification in operation (i.e. see col. 8 lines 31-52) of an associated component (i.e. processor 32) and display the operating status for one or more components related to each performance controls (i.e. the amount of charged-time left on time indicator 64).

As to claim 15, Barrus teaches the information handling system of claim 8, further comprising the program of instructions operable to implement the modification in operation (i.e. see col. 5 line 65 – col. 6 line 35).

As to claim 16, Barrus teaches the information handling system of claim 8, further comprising the program of instruction operable to substantially simultaneously display the operating status (CPU speed dial 60) for the first component (processor 32), receive the desired modification in operation (i.e. using CPU speed dial 60 see col. 5 line 66 – col. 6 line 16) for the first component, and display on the display device (display 22) the operational status for the first component and at least one operationally linked component (i.e. the amount of charged-time left on time indicator 64).

As to claim 19, Barrus teaches the computer program of claim 18, further operable to display a performance control for each configurable information handling system component (visual interface 50).

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As to claim 20, Barrus teaches the computer program of claim 19, further operable to simultaneously display (visual interface 50 on display 22) the operating status (i.e. hard drive powerdown-time dial 54, display brightness dial 56, CPU speed dial 60) of each information handling system component (i.e. hard drive 35, display 22, processor 32) related to the configurable information handling system components.

As to claim 21, Barrus teaches the computer program of claim 18, further operable to define the relationships between the plurality of information handling system components based on performance data for the current information handling system configuration (i.e. see col. 5 lines 52-65).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrus (US Patent # 6,192,480 B1) in view of Dunstan et al. (US Patent #5,560,022).

As to claim 4, Barrus teaches the method of claim 1 (see claim 1 above), further comprising determining the operating status (i.e. the amount of charged-time left in batteries 26 shown in time indicators 64) of a related component (batteries 26) resulting from effecting the user preference setting (CPU speed dial 60) on the selected component (processor 32) but does not teach where the determination is based on component behavior observed during operation. Dunstan teaches where the

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determination of the operating status is based on component behavior observed during operation (i.e. "If enough power is not available, then the power budgeter 240 generates warning indications to the user and begins to "load shed" by powering down targeted components and staggering certain tasks to reduce the temporal demand from the battery resource," see col. 12 lines 1-23)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the determination of Dunstan in place of Barrus "to provide such a power management system with extremely flexible and programmable power management policies." (see col. 2 lines 1-4)

As to claim 17, Barrus teaches the information handling system of claim [14] (see claim 14 above), but does not teach the performance control representing a component control for a software module, the software module responsible for controlling a plurality of operationally linked component parameters. Dunstan teaches the performance control representing a component control for a software module (power management coordinator 100), the software module responsible for controlling a plurality of operationally linked component parameters (i.e. multiple power management components 210-290 see col. 8 lines 12-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a performance control representing a component control for a software module as taught by Dunstan in place of a performance control of Barrus "to provide a power management system and interface for a computer system that responds to and manages add-in devices that are integrated with the system by a user" (i.e. see col. 1 line 62 - col. 2 line 12).

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9. Claims 13 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrus (US Patent # 6,192,480 B1) in view of Roshal (WINRAR 2.50).

As to claim 13, Barrus teaches the information handling system of claim 9 (see claim 9 above), but does not teach the program of instructions operable to lock the operating status of at least one component such that modification of one or more related components is limited by the defined operational links and the operating status of the locked component. Roshal teaches the program of instructions operable to lock the operating status (progress bar) of at least one component (extraction of a file in a .rar archive) such that modification (extraction) of one or more related components (other files in the .rar file) is limited by the defined operational links (location of the file within the archive) and the operating status of the locked component (password protected file).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the program of instructions operable to lock the operating status of at least one component such that modification of one or more related components is limited by the defined operational links and the operating status of the locked component of Roshal in place of the program of instructions of Barrus to prevent unauthorized access to the contents of the archived file.

As to claim 22, Barrus teaches the computer program of claim 18 (see claim 18 above) but does not teach to selectively fix the operating status of one or more configurable information handling system components. Roshal teaches to selectively fix (password protect) the operating status (progress bar) of one or more configurable information handling system components (files containing data archived in a .rar file).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the computer program to selectively fix the operating status of Roshal in place of the program Barrus, "to provide such a system that is flexible and easily responds to new devices added to or removed from an existing system. It is also an object of the present invention to provide such a power management system with extremely flexible and programmable power management policies." (See col. 1 line 62 - col. 2 line 12)

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gigabyte Technology Co. has a computer program for the overclocking of its motherboards called EasyTunelll. This is included in its GA-60XM7E motherboard, reviewed by www.xbitlabs.com on 17 August 2000. This program discloses an operating status of a processor with a performance control to adjust the front side bus (fsb). One of ordinary skill in the art knows that as the fsb is increased, the faster the processor runs using the equation: $\text{processor speed} = \text{fsb} * \text{multiplier (of the processor)}$.

Also, Gigabyte Technology Co. also has a bios program to adjust performance features of the operation of its computers. Here it discloses a performance control for the Vcore of the processor and a corresponding operating status (p. 51-52). There is also an operating status of the CPU temperature. One of ordinary skill in the art knows that if there is more voltage going to the processor, the warmer it operates.

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Inquiries

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Noble S. Wong whose telephone number is (571) 270-1044. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NSW

Noble Wong

1 June 2006


CHANH NGUYEN
PRIMARY EXAMINER

PTO-1449 Information Disclosure Citation in an Application				Application No.		Applicant(s)		
				Not yet assigned		Gary J. Verdun et al.		
				Docket Number		Group Art Unit		Filing Date
				016295.1421 (DC-05148)		Not Yet Assigned		
				September 11, 2003				
U.S. PATENT DOCUMENTS								
		DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE	
NSW ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	A	6,353,885	03/05/02	Herzi et al.	713	1	01/23/99	
	B	6,205,476	03/20/01	Hayes, Jr.	709	220	05/05/98	
	C	6,064,385	05/15/00	Sturgeon et al.	345	353	09/30/97	
	D	5,650,776	07/22/97	Mitchell et al.	340	825.44	05/08/95	
	E	5,546,595	08/13/96	Norman et al.	395	800	12/21/93	
	F	2003/0046421 A1	03/06/03	Horvitz et al.	709	238	12/12/01	
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FOREIGN PATENT DOCUMENTS								
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NON-PATENT DOCUMENTS								
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	Q							
	R							
	S							
	T							
EXAMINER					DATE CONSIDERED			
/Noble Wong/					05/22/2006			
EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.								

Notice of References Cited	Application/Control No. 10/659,880		Applicant(s)/Patent Under Reexamination VERDUN ET AL.	
	Examiner Noble S. Wong		Art Unit 2193	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,192,480	02-2001	Barrus, Jeff	713/320
*	B	US-5,560,022	09-1996	Dunstan et al.	713/300
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

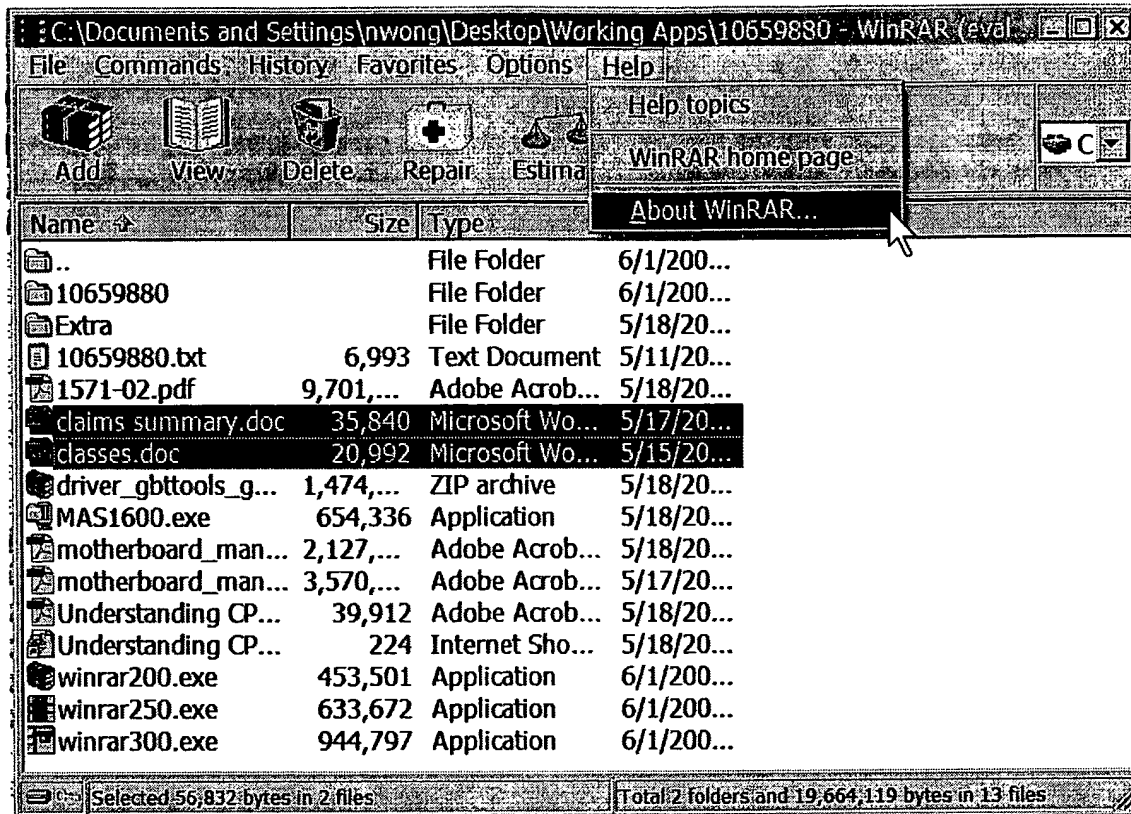
*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

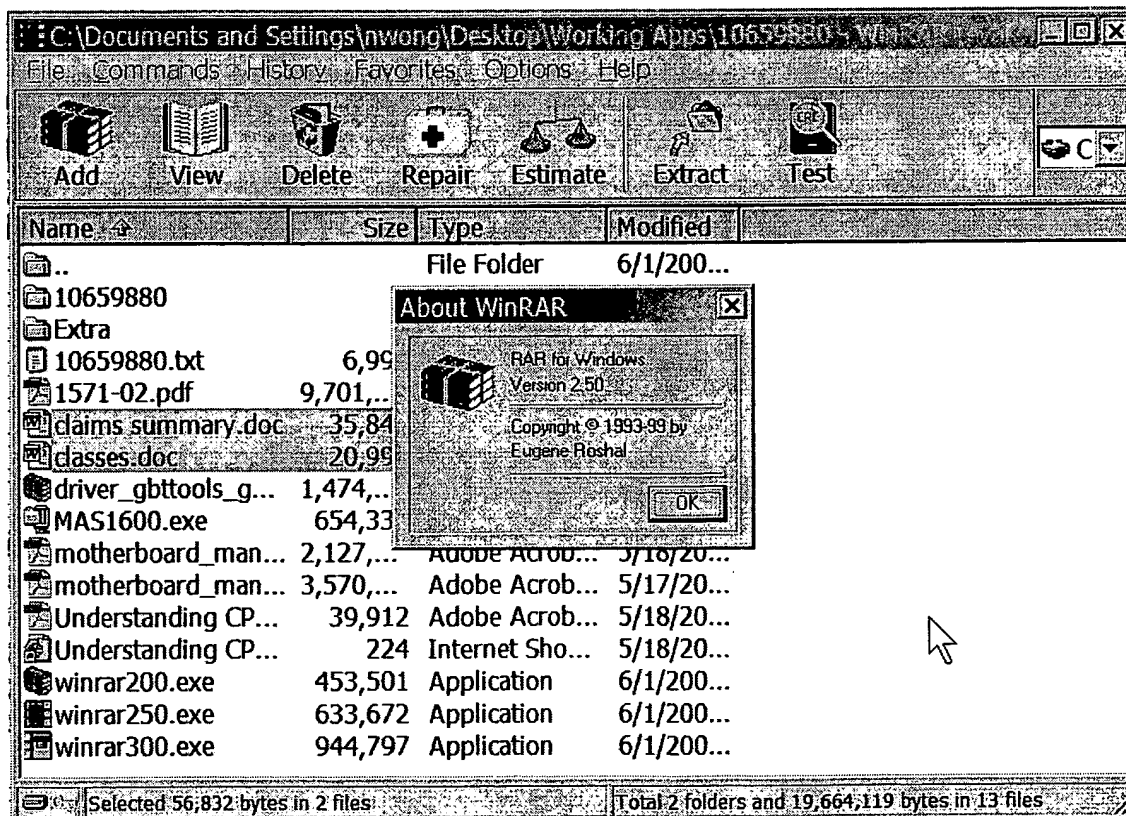
*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Roshal, Eugene; WINRAR 2.50; 1999;
	V	EasyTuneIII and BIOS Utilities; Giga-byte Technology Co., LTD.; 2000-2002
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

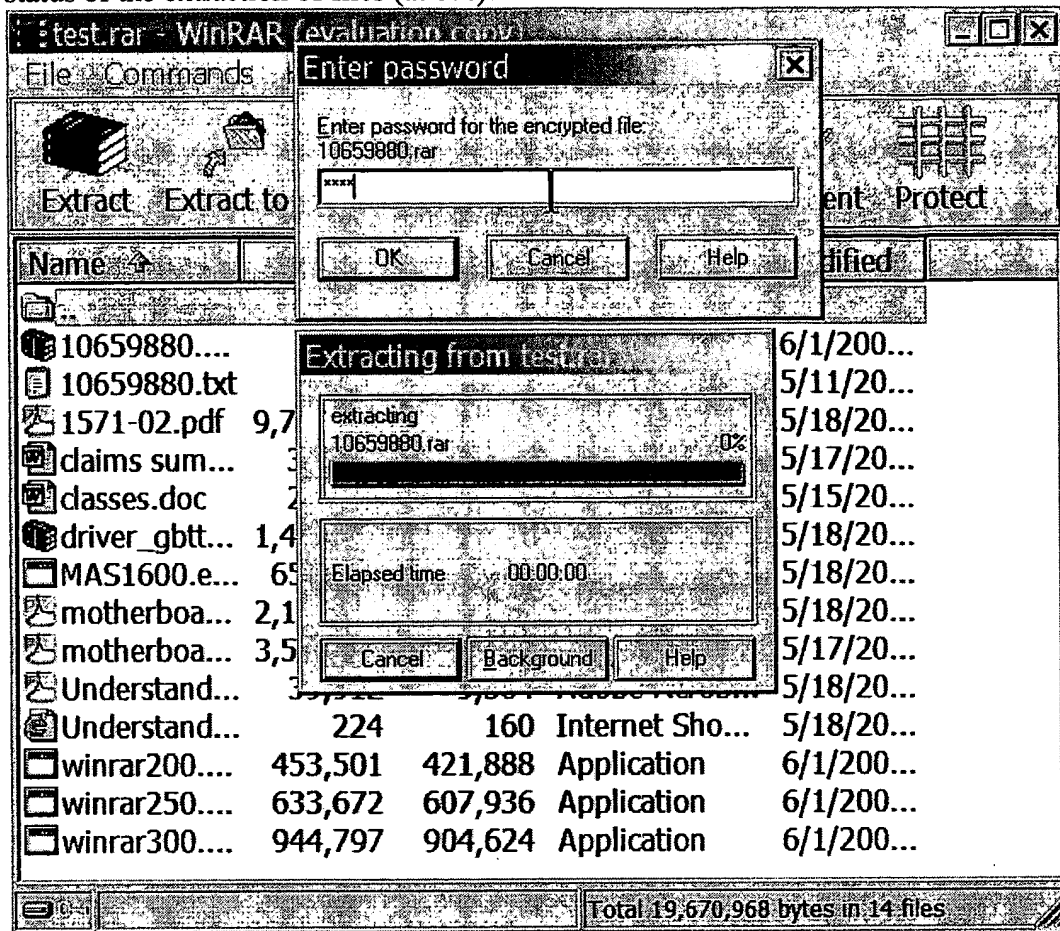
About WINRAR 2.50... (found on www.oldversion.com)



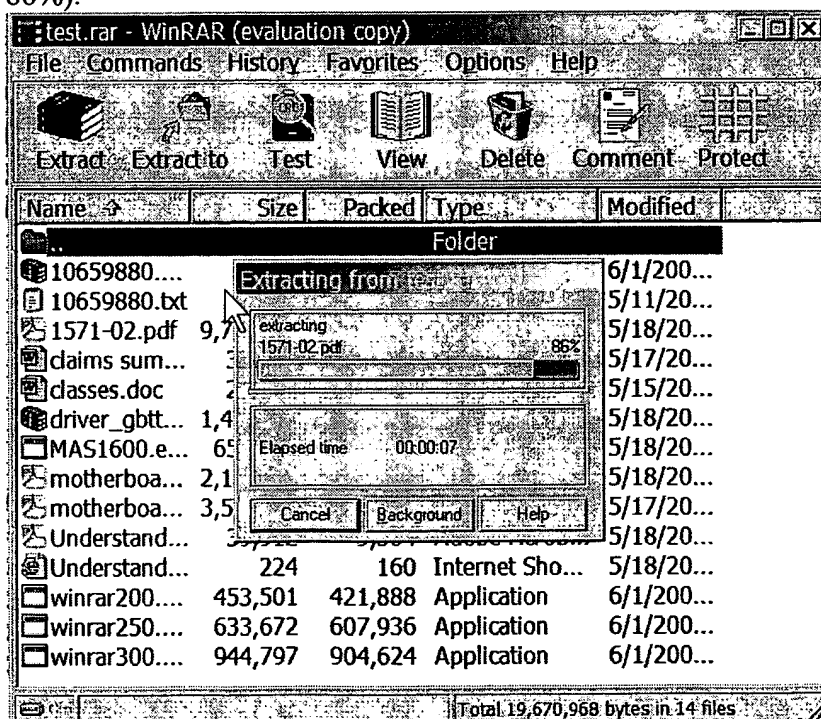
Made by Eugene Roshal Copyright 1993-1999



Lets extract (click on extract). Dialogue box opens to enter password. Also, notice the operating status of the extraction of files (at 0%)... Lets unlock the archive and extract the files.



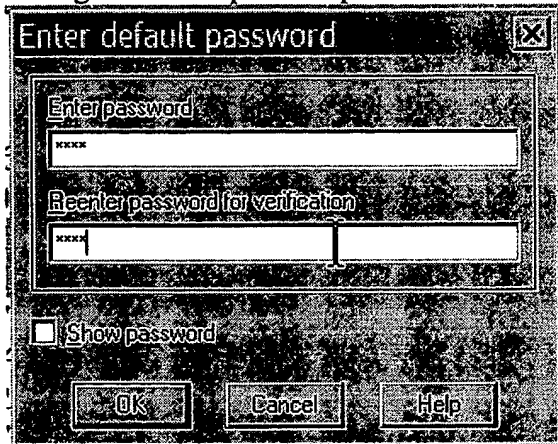
As the program extracts the files, the operational status of extracting the files is shown (now at 86%).



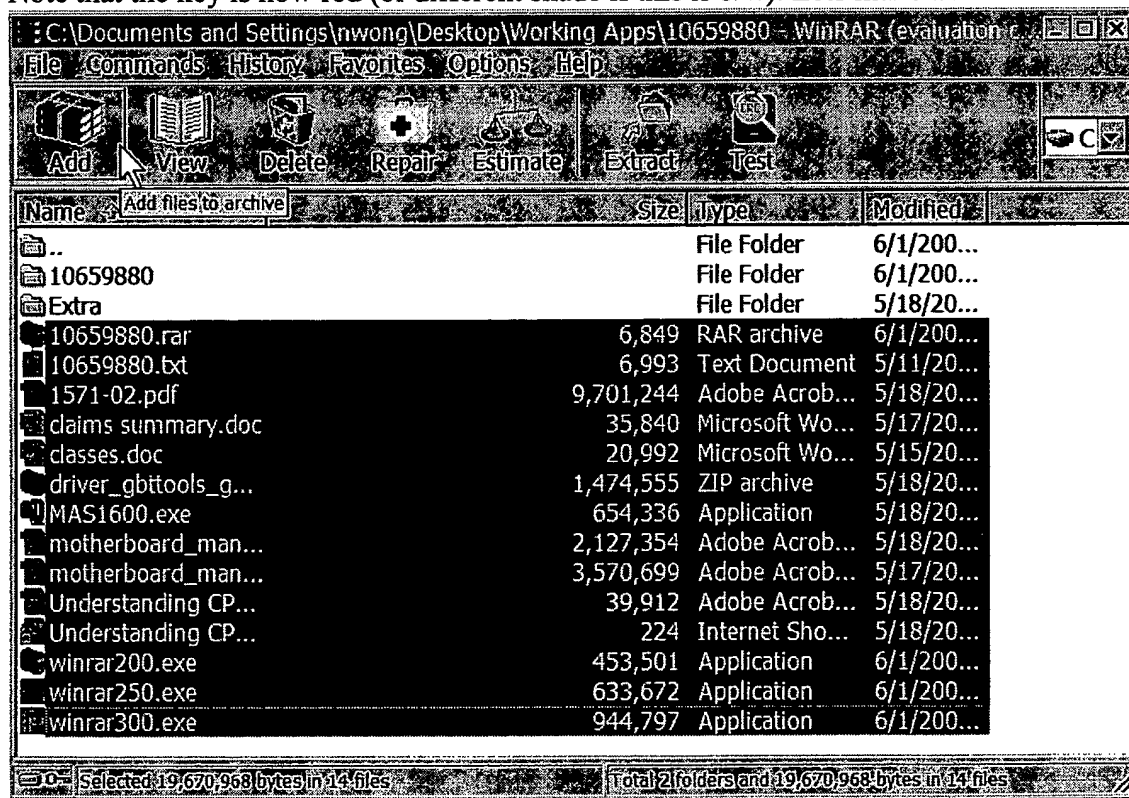
Click this to add a password to lock future archives:



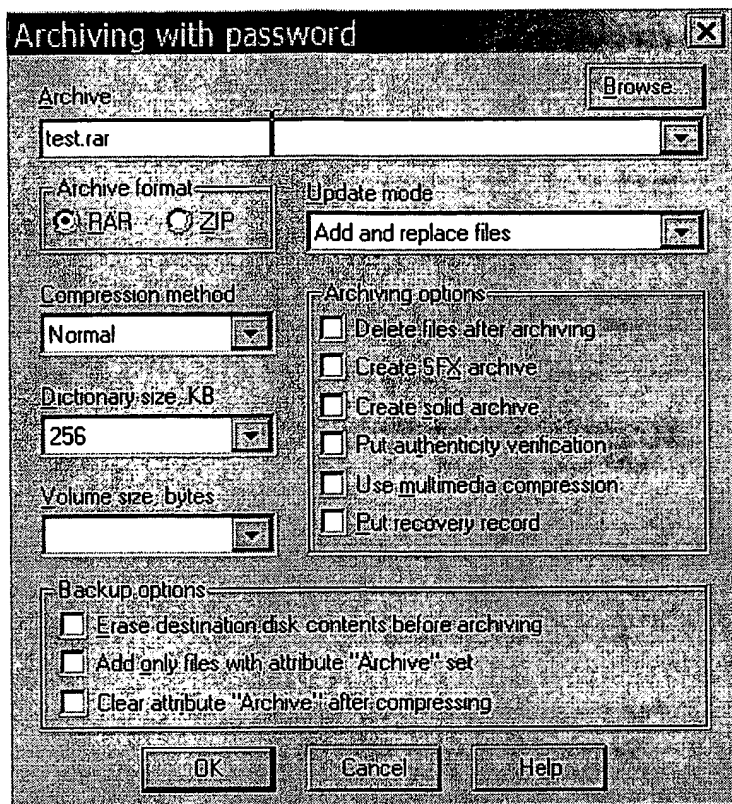
Dialogue comes up to add password



Note that the key is now red (or different shade if this is b/w). Lets make a new archive...



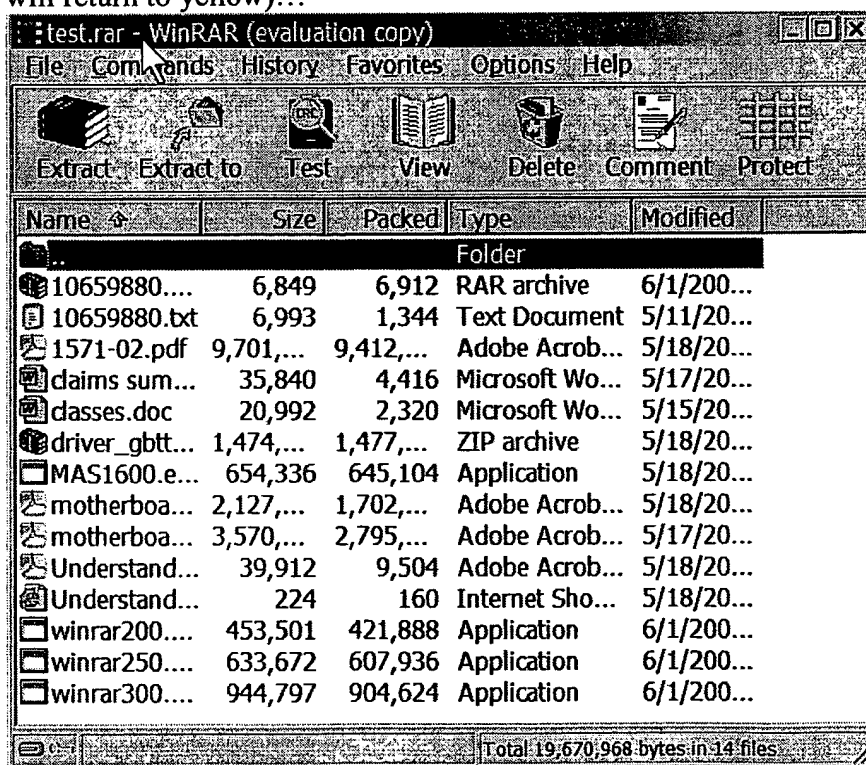
After clicking add, options are shown. Note, it says archiving with password...



Archive created...

motherboard_man...	3,570,699	Adobe Acrob...	5/17/20...
test.rar	17,992,434	RAR archive	6/1/200...

Lets open it and turn off the password by clicking the key and putting blanks in textbox (the key will return to yellow)...



Gigabyte GA-60XM7E Review

Category: Mainboards

by FastSite

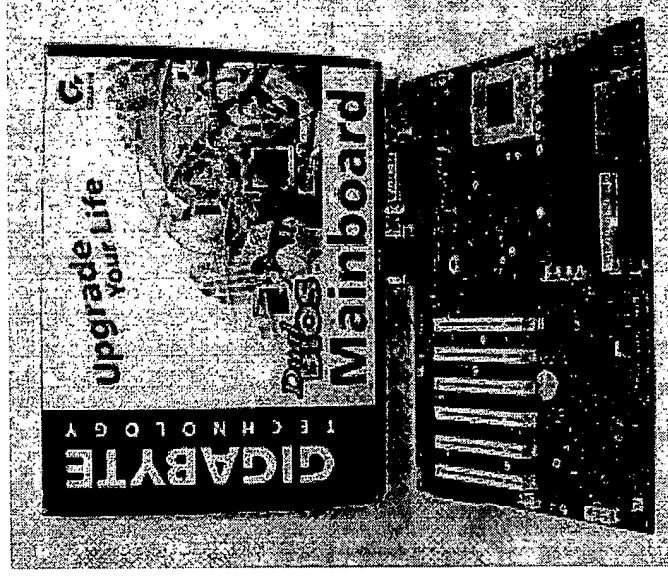
[08/17/2000 | 12:00 AM]

This is a mainboard from Gigabyte built on i815E chipset. The mainboard is equipped with 4 DIMM slots and can boast Dual BIOS technology and Easy Tune III overclocking utility

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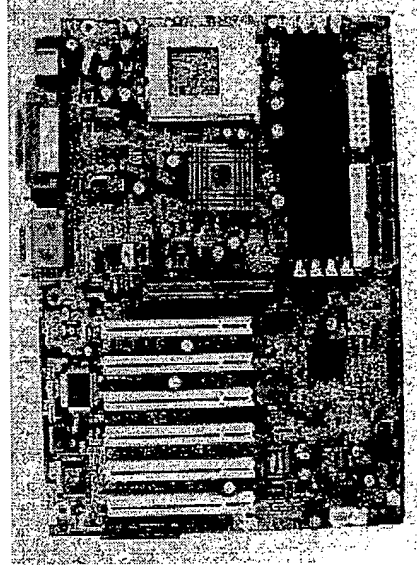
i815 seems to be replacing VIA Apollo Pro133A in the today's market like the latter in its turn replaced i440BX chipset. At least, if we take into account the enthusiastic welcome i815 received from the manufacturers as well as from the customers, we will have every right to state that i815 based mainboards will enjoy great popularity. Everybody has long waited for an Intel chipset supporting 133MHz FSB and PC133 SDRAM. However, Intel lost too much time trying to push forward its i820 supporting expensive RDRAM into the market and as a result the triumph of i815 chipset turned out a bit faded. There is less than half a year left till the launching of new chipsets for Pentium III supporting low-cost but very high-performance DDR SDRAM. And the first mainboards with DDR memory, though this time for AMD processors, are expected to come out in the beginning of autumn. Nevertheless, i815 looks really attractive especially for Intel CPU owners. That's why today we are offering you one more review of a new product on this chipset.



This review is devoted to a new mainboard from Gigabyte - GA-60XM7E. Gigabyte has already developed a few mainboards on i815 chipset, but GA-60XM7E seems to be the most promising product of all. It uses a newer ICH2 with more functions as a South Bridge. The mainboard is

designed in ATX form-factor. Since all Gigabyte products have always been known for their high quality and stability that is why GA-60XM7E promises to be a really good choice to make. Well, let's find out what the verdict will sound like after all the tests are over.

Specification



- CPU
 - Supports FCPGA and PPGA
 - Socket 370 Intel Pentium III with 100/133MHz FSB and Intel Celeron with 66MHz FSB
- Chipset
 - Intel 815E (Intel 82815 Graphics and Memory Controller Hub (GMCH), Intel 82801BA Enhanced I/O Controller Hub 2 (ICH2), Intel 82802AB Firmware Hub (FWH))
- System memory
 - 4 168-pin DIMM slots supporting PC100/PC133 SDRAM
 - Max supported memory: 512MB
- AGP
 - AGP Pro slot supporting 4x mode
 - AGP 4x graphics core integrated into the chipset
- Slots
 - 6 32bit PCI slots
 - 1 CNR slot (Communications Network Riser)
- Integrated sound
 - Optional Creative CT5880 sound chip
 - Integrated AC'97 v.2.1 codec
- I/O ports
 - 1 FDD port, 2 serial and 1 parallel port, ports for PS/2 mouse and keyboard
 - 2 built-in USB ports and 4 additional USB ports (4 USB ports altogether)
- Integrated IDE controller
 - 2 IDE channels supporting ATA/33/66/100 (supporting up to 4 ATAPI devices)
- BIOS
 - 4Mbit Flash EEPROM
 - Award BIOS
 - Optional Dual BIOS
- Other
 - STR (Suspend to RAM)
 - Hardware monitoring
 - Wake on modem, mouse, keyboard, LAN and timer

- Dimensions
 - ATX form-factor, 30.5x21.5cm

GA-60XM7E is supplied in a conventional Gigabyte box of blue color. The package contains of course the motherboard, a user's manual, a CD-disk with the drivers and a set of cables: a FDD cable and UltraDMA/66 cable. As far as the manual is concerned, it is provided with the whole lot of illustrations, which is typical of Gigabyte. Even an unsophisticated user can cope with the motherboard installation with the help of a manual like that. Unfortunately, the package doesn't include and commercial software, which has become a usual thing for the motherboards by other manufacturers. Nevertheless, on the CD-disk you can find a couple of nice trifles from Gigabyte: Easy Tune III and @BIOS. We are going to tell you about all of them later in our review.

Closer Look

Gigabyte GA-60XM7E represents the last generation of i815E based motherboards. It is equipped with Socket 370. Despite all the drawbacks of i815E chipset, which include the support of only 512MB of memory and no AGP Aperture Size support for over 64MB, this chipset is nearly the only one in i8XX family to meet the today's requirements and to offer acceptable price-to-performance ratio. The most important plus of i815E compared to the previous Intel blockbuster, i440BX, is the support of 1:2 AGP frequency divider, which allows graphics cards to work at the nominal frequencies even if the FSB is set to 133MHz.

The major distinguishing feature of GA-60XM7E compared to other i815E based motherboards is the 4 DIMM slots, which you can surely notice at first glance. All the other motherboards on this chipset we have already reviewed, feature 3 DIMMs. However, it doesn't mean that Gigabyte managed to somehow overcome the chipset restrictions. No, it didn't. Like all other i815E based products, GA-60XM7E supports 512MB of memory and 6 banks at the most. In other words, the fourth DIMM slot can be involved only if there are at least two single-bank (single-side) DIMM modules in the system. Besides, you should always keep in mind one more thing. According to Intel's guidelines, Gigabyte is so carefully following, i815E based motherboards should support only 4 PC133 SDRAM memory banks. In other words, it means that with the 2 double-bank (double-side) PC133 SDRAM modules installed into GA-60XM7E, they will be able to work at 100MHz only and there is nothing you can do about it. However, if the system is equipped with a CPU supporting 133MHz FSB and there are less than 5 memory banks used (1 or 2 double-bank modules), then the BIOS of GA-60XM7E allows selecting which SDRAM working frequency you'd like to set: 100MHz or 133MHz. If the CPU supports 600 or 100MHz FSB, the memory will be always clocked for 100MHz in any case.

After this complicated description of the memory configuring algorithm for our GA-60XM7E, we really feel like pointing out that Gigabyte managed to catch up with Intel in terms of CPU installation simplicity. In other words, you don't need anything other than the CPU itself to carry out the installation process correctly. The motherboard as well as BIOS Setup can't boast any extra means to change the FSB frequency or to set the clock multiplier. Everything is done automatically.

Since i815 chipset features an integrated graphics core based on i752, like the one used in i810E chipset, GA-60XM7E can be used with the integrated graphics as well as with a fully-fledged external graphics card. For this purpose the motherboard is equipped with an AGP slot supporting 3.3V and 1.5V AGP 1x/2x/4x graphics cards. In order to make use of your GA-60XM7E's integrated graphics, you need simply to plug the monitor cable into the corresponding Out on the rear panel of the motherboard, which is placed instead of the second COM-port. However, when making this decision you should bear in mind the relatively low performance shown by i752 in 3D graphics that's why the solution with the integrated graphics will suit only for office systems at the most. To make using AGP slot convenient for you, it is provided with the company's brand retention mechanism, which has become Gigabyte's distinguishing feature. This mechanism helps to hold the graphics cards installed into AGP slot in a correct position.

To slightly speed up the integrated graphics, Gigabyte engineers made it possible for GA-60XM7E to allow installing A1MM cards into the AGP slot, like we can see on many other i815E based motherboards. These cards are none other but a graphics cache, like the one used by i810E motherboards. The cache works at 133MHz and serves either to store the z-buffer or to buffer 2D operations. Moreover, if you wish to extend the functions of your

integrated graphics, GA-60XM7E also has a special connector for a GA-DFP-X riser-card, which equips the mainboard with the DFP and TV-Out connectors.

GA-Gigabyte 60XM7E is fully compliant with PC99a spec and doesn't have any ISA slots. The mainboard has 6 PCI and 1 CNR (Communication and Network Riser) slot instead. Actually, the full size expansion cards can be installed only into one PCI slot, otherwise the connectors located on the mainboard front edge will stand in the way. As for the CNR slot, this innovation appeared only in i815E and i820E based mainboards with a new ICH2 South Bridge. CNR slots are a further stage of AMR (which is incompatible with CNR, actually). These slots serve for special software sound cards, LAN-cards, HPNA-cards and modems. In fact, an alternative to CNR slot actively pushed forwards by AMD, namely ACR slot, looks a bit more promising because it can boast a richer range of supported features. However, no ACR slots have been really implemented yet.

ICH2 (Intel 82801BA) South Bridge used on GA-60XM7E implements a few more interesting features. In particular, this controller supports new HDD interface - ATA/100 and so does GA-60XM7E mainboard. To make use of this new interface you need a hard disk drive supporting ATA/100 and an 80-pin cable, which goes together with the mainboard.

Gigabyte decided not to use ICH2 features responsible for the software AC'97 sound implementation. The mainboard is equipped with a fully-fledged PCI sound controller: Creative CT5880. An interesting peculiarity about the realization of this sound is the use of four-channel Sigmatal STAC9708T codec. From the practical viewpoint it means that the graphics card integrated into GA-60XM7E is also a four-channel one and hence you can connect one more pair of speakers into the mainboard's Line In.

As far as the ATX specification is concerned, Gigabyte GA-60XM7E is very close to being ideal. As a mainboard of a standard size, GA-60XM7E can fit into any ATX case. IDE and FDD connectors and power supply connector are situated in front of the DIMM slots as recommended by the specification. Since there is a monitor Out instead of the second COM-port on the rear panel, the connector for the missing COM-port is located on the mainboard itself. However, there are no cables with an external connector in the supply. We would also like to point out a very nicely looking PCB of vivid blue color.

GMCH, the main hub of i815E, is provided with a gold heatsink stuck to its surface. There is a tiny yellow LED in front of the DIMM slots warning the user against installing/removing the devices with the power on, in Suspend-to-RAM mode, for instance. However, we are very unhappy to tell you that it doesn't cope with its task to the full extent. The thing is that according to PCI 2.2 specification, PCI slots can be powered even when the DIMMs are de-energized. That is why it would be more correct connecting this LED to the PCI bus, like on ASUS CUSL2.

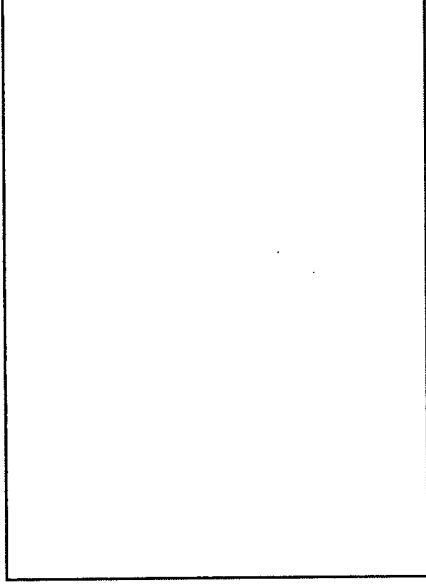
Near Socket 370 of our GA-60XM7E there are 9 capacitors of 1200uF each and a few smaller ones. All of them are located so that not to hinder the installation of large coolers, such as Golden Orb, for example.

Among the most funny peculiarities of GA-60XM7E we should mention a Smart Card Reader connector for a device, which is installed into the empty 3.5" slot and which allows reading flash cards, electronic keys and cell phone cards. Certainly this option may be very useful for corporate networks and to solve authorization and authentication tasks.

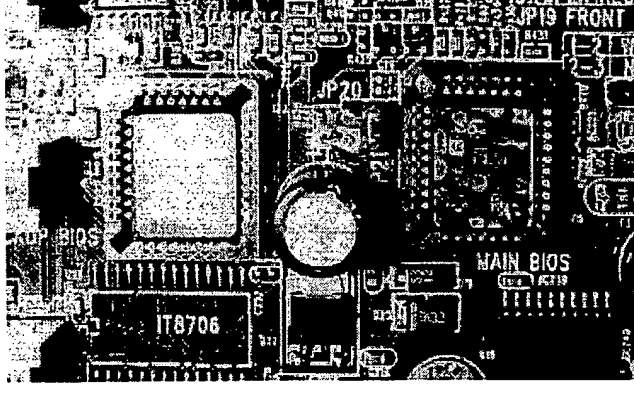
Gigabyte used AMI BIOS in all its latest mainboards. However, GA-60XM7E appeared the first exception. This mainboard is provided with Award BIOS version 6.00PG. Gigabyte modified this BIOS having removed all the options for the mainboard fine tuning so that the only thing you can change from BIOS Setup remained the memory timings. The specialists will hardly like this BIOS, but nevertheless, easy Setup configuring will be irreplaceable for inexperienced users.

Speaking about BIOS we can't help mentioning Gigabyte's new development - @BIOS utility. This utility is intended for BIOS reflashing from Windows. It allows downloading BIOS updates from Gigabyte web-site automatically and reflashing the BIOS by pressing one single button. So, @BIOS not only

simplifies BIOS updating procedure but also serves as a panacea for Windows2000 owners, who cannot use the command prompt and other conventional reflashing utilities like AwardFlash.



In conclusion let us say a few words about one more peculiarity of Gigabyte GA-60XM7E mainboard connected with the BIOS. It's the company's brand Dual BIOS Technology. In brief, its main idea looks as follows. There are two physical FWH microchips with flash memory on the mainboard, which store two BIOS copies: primary and reserved. If the primary BIOS gets damaged, the copy allows booting the mainboard and restoring the content of the spoilt chip. This technology protects the mainboard against breakdown caused by CIH-like viruses or by reflashing improper BIOS versions.



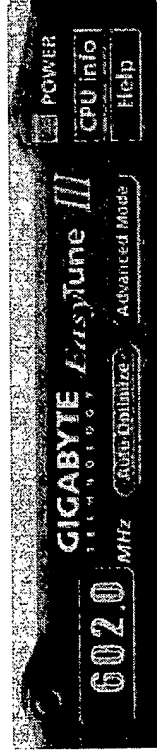
GA-60XM7E also features hardware monitoring. It fulfils pretty diverse functions, namely: measures the CPU temperature based on the thermal diode built into the processor core, rotation speeds of all 3 fans and 8 voltages. The mainboard is also equipped with a chassis intrusion detector.

Overclocking

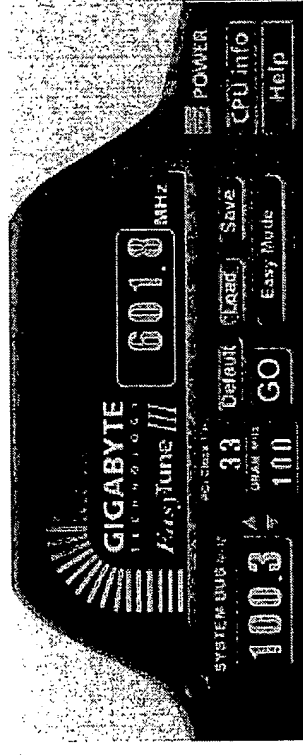
Well, Gigabyte once again managed to think of something remarkable. This time in terms of overclocking. As we have already stated above, BIOS Setup

as well as the motherboard itself do not provide any opportunities to change the FSB frequency. Even the three jumpers, which should serve to switch between 66, 100 and 133MHz FSB, are simply absent, though the layout implies them. As a result the CPU frequency is set as default every time you install a new CPU.

However, this doesn't mean that Gigabyte GA-60XM7E doesn't allow overclocking CPUs. The thing is that Gigabyte provided its motherboard with a special Windows utility - Easy Tune III, which is destined to make overclocking an easy task even for beginners. This utility supports two modes: easy and advanced.



In easy mode the only thing you have to do is to press the "Auto Optimize" button. The utility will analyze all the data and increase the CPU frequency up to the safe level.



In advanced mode you can change the FSB frequency on your own. The available range includes: 55, 60, 66, 68, 70, 72, 75, 77, 83, 90, 100, 103, 112, 115, 120, 125, 128, 130, 133, 137, 140, 145, 150, 153MHz. Moreover, the utility shows you the PCI and memory frequencies you get if setting the FSB to a selected value.

Unfortunately, Easy Tune III utility works only in Windows OS that's why all users working in other operation systems appear completely deprived of all overclocking options. Of course, this program is very helpful for overclocking, but it could be much better to also have some other hardware opportunities, such as jumpers or BIOS Setup, besides that.

However, besides Easy Tune III, Gigabyte has also made it possible to increase Vcore by 10% with a special Magic Booster jumper.

And now a bit of practical stuff. In order to test the motherboard's overclocking potential we took Intel Pentium III 600 with a new c80 core stepping, which we managed to overclock up to 960MHz (160MHz FSB) on other i815 based motherboards. Having applied Easy Tune III utility in easy mode the CPU core frequency rose up to 681MHz (112MHz FSB). We were disappointed with this outcome, to say the least of it, so we decided to take another try in advanced mode. This time we managed to get 130MHz FSB and as soon as we set this value equal to 133MHz, the system crashed. In other words, the maximum we achieved on Gigabyte GA-60XM7E was only 780MHz core frequency. Unfortunately, this result is much lower than the frequencies we reached with the same CPU on other i815 based motherboards. This fiasco is very likely to be connected with Easy Tune III utility and not with the motherboard and hopefully next programs will allow achieving more in terms of CPU overclocking. And in the meanwhile, Gigabyte GA-60XM7E hardly

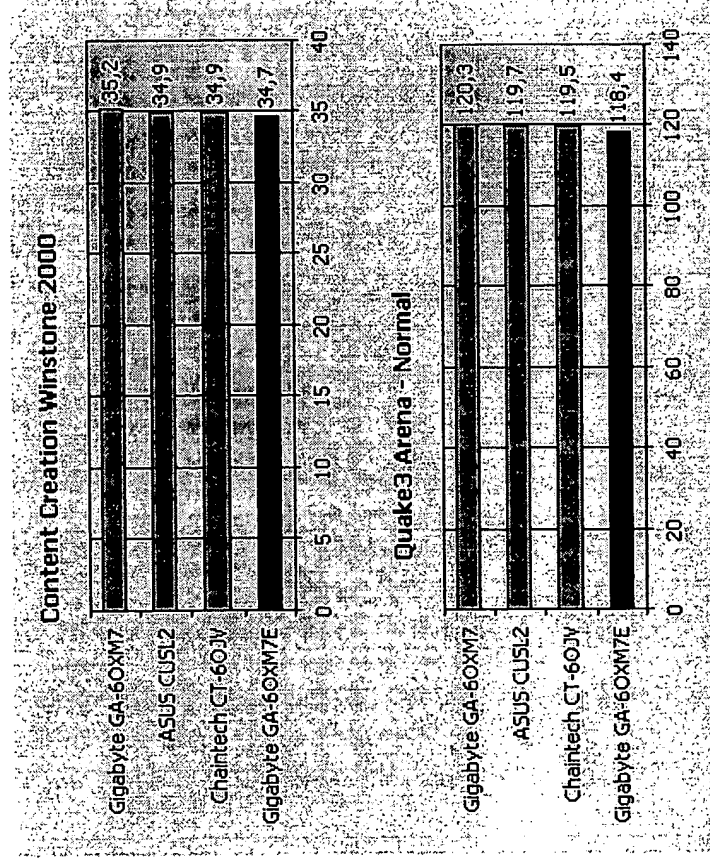
suits for overclocking purposes.

Performance

The test system was configured as follows:

- Intel Pentium III 800EB (6x133) CPU
- Creative 3D Blaster Annihilator Pro (NVIDIA GeForce256 DDR) graphics card
- Creative Sound Blaster Live! sound card
- IBM DLTA 307030 HDD
- 256MB PC133 SDRAM by Micron

We have already considered the performance of Intel 815 chipset (see Intel 815 Chipset Review). And now let's take a look at the results shown by some mainboards based on this chipset:



Unfortunately, we have to state that Gigabyte GA-60XM7E can't boast super high performance though we are used to regarding Gigabyte mainboards as really fast products. However, speed characteristics aren't the main argument when you choose a mainboard from a range of products based on the same chipset. The performances of different products differ so much, that you can't rely only on the benchmarks when selecting the right board. It's much more important to pay attention to the special features of a product.

As for the product's stability, Gigabyte GA-60XM7E proved one of the most stable and reliable i815 based mainboards.

Conclusions

Well, for an unsophisticated user Gigabyte GA-60XM7E is a really good mainboard to choose, because it proves highly stable and reliable at nominal frequencies, features beautiful design and some unique things, such as Dual BIOS. However, overclockers will hardly be happy with this piece. The absence of hardware overclocking options and not very impressive results obtained with Easy Tune III utility are very unlikely to inspire progressive users.

Highs:

- 133MHz FSB, AGP 4x, ATA/100;
- High stability;
- Beautiful design;
- Dual BIOS technology and @BIOS utility.

Lows:

- Poor overclocking potential.

